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ABSTRACT

This report presents an evaluation of the usefulness of videotex for technical information services which is based on studies of a number of videotex systems operating in several countries, and a description of the structure and content of a database which has been introduced into the Finnish videotex system, Telset, by the Technical Information Service. This database provides the system with information on the Research Center and its work, and on the activities and organization of the Technical Information Service. Brief reviews of the three leading rival technologies in the field--Prestel (United Kingdom), Antiope (France), and Telidon (Canada)--are followed by descriptions and sample pages of databases providing scientific and technical, library, business, and governmental information which are available through a variety of teletex systems, including Contel (United Kingdom), Captain (Japan), Teletel (France), Bildschirmtext (West Germany), Viditel (the Netherlands), and Fintel (Finland). Videotex services provided by OCLC in the United States, and potential uses of videotex by closed user groups and in connection with other information retrieval systems are briefly noted. The usefulness of videotex for technical information is then discussed in the context of information retrieval, document delivery, and dissemination of information. A list of references and other related literature is included. (LMM)

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VIDEOTEX APPLICATIONS IN THE TECHNICAL INFORMATION SERVICE

Pirjo Vesterinen
Inga-Leena Gröhn
Technical Information Service

Espoo, June 1982

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ABSTRACT

The Technical Information Service of the Technical Research Centre of Finland has studied a number of videotex systems operated in several countries. The main emphasis has been on the content of the technical information. The Technical Information Service has also introduced its own data base into a Finnish videotex system, Telset. On the basis of this experience the usefulness of videotex for technical information services is evaluated.

Videotex has some advantageous features compared with many other information media: the information can be updated and disseminated rapidly, and the system can reach a relatively large number of users who are able to consult the databases and move from information retrieval to transactional services. The main potential of videotex, in the technical as well as in other fields, is in providing current, compact and factual information. Small-scale news services, encyclopedias, directories and compact techno-economic information are suitable for videotex. This kind of information, however, fulfils only a small part of the information demand in technical information services.

The search procedure in videotex is hitherto still somewhat undeveloped. It is based on a rigid tree-like hierarchy, which makes the search inflexible and time-consuming. In the future, however, videotex systems will adopt the keyword search procedure.

Because of its limited information content and cumbersome search procedure videotex is not likely to become an important information system in technical libraries and information services in the near future. However, the improved search procedure and the introduction of the gateway facility, which enables a connection to other databases and information systems outside videotex, are a significant development in the information retrieval capacity of videotex and will probably bring new and useful information sources into the scope of technical information services.

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1 INTRODUCTION

Videotex is a generic term describing two-way information services linking adapted TV sets to computer databases over the public telephone network. Videotex can be used for several purposes: retrieving information from centrally maintained databases, inter-office communication with the user's own databases and also many kinds of transactional services, for example message services, telebanking, teleshopping etc. The users can move freely from one information service to another and from information retrieval to transactional services. This gives videotex certain advantages over other media.

The Technical Information Service of the Technical Research Centre of Finland (VTT) has studied videotex systems operated in several countries for applications in technical information services. Examples are given of relevant videotex databases and a summary of the information contents and a reproduction of a typical videotex page are presented.

The Technical Information Service has also provided the Finnish videotex system Telset with information on the Research Centre and its work, and on the activities and organization of the Technical Information Service. The structure and content of the database are described in the report.

An evaluation of the videotex systems for technical information services is also given. Videotex is discussed from the following points of view: information retrieval, document delivery and dissemination of technical information.

The project was sponsored by Nordinfo, the Nordic Council for Scientific Information and Research Libraries, and by the Technical Research Centre of Finland.

2 DEVELOPMENT OF VIDEOTEX

The development of videotex was started in the early nineteen-seventies in the United Kingdom. The system developed by the British Telecom was first called "Viewdata" and later "Prestel". In the United Kingdom viewdata is still often used as a synonym for videotex. The videotex system consists of a central computer, public telephone lines for two-way communication and television sets for display (Figure 1).

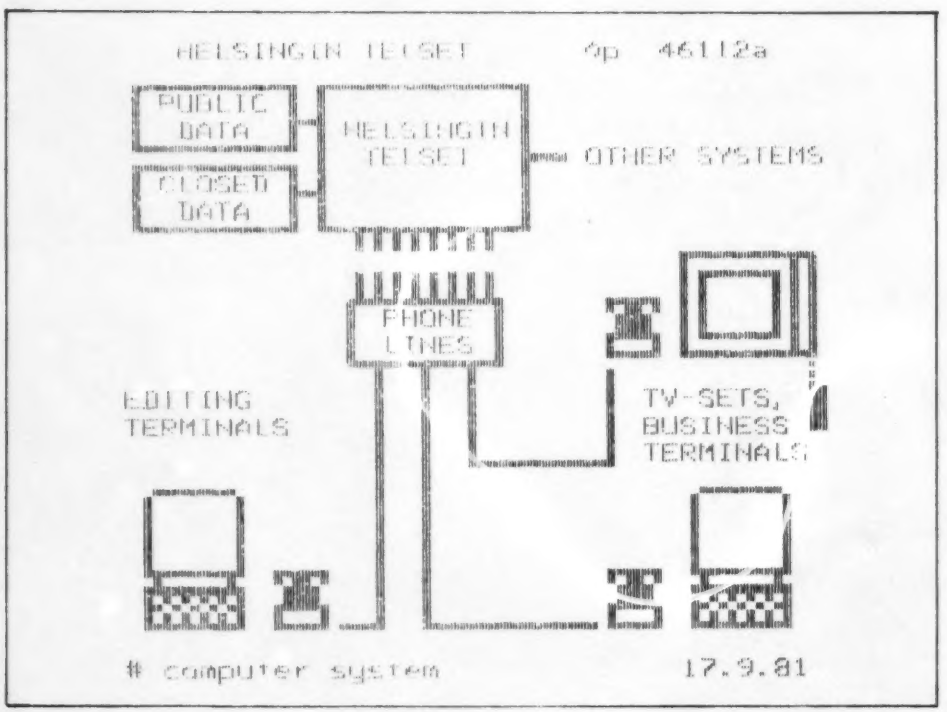

Figure 1. The videotex configuration (the Finnish Telset system).

The principal idea of Prestel was to develop a cheap, electronic communication medium for the mass market, the general public and the business community as target groups. In January 1976 the Pilot Trial Service of Prestel, intended for suppliers, television manufacturers and providers of information, was initiated in

order to gain experience of the system. Prestel was introduced in early 1979 as a public information service. At the end of 1981 Prestel had about 500 information providers, over 200 000 frames of information and 12 800 users.

Videotex systems have also been under development in several other countries (Table 1). There are at present three different rival technologies in the field: Prestel from the United Kingdom, Antiope [1] from France and Telidon from Canada. The differences between the systems are mostly related to the display and coding of graphics.

Both Prestel and Antiope are alphamosaic schemes, i.e. the coding and transmission formats include alphabetic characters and graphic characters made out of a 2 x 3 matrix of blocks, which can be used in any combination to build mosaic images and graphic representations rather lacking in detail. Prestel and Antiope are currently incompatible, but an unified alphamosaic standard, the CEPT (Conference of European PTTs) European Unified Standard has been accepted as the basis for future European development. This new scheme is compatible with both Prestel and Antiope and will in time supersede them.

Telidon is an alphageometric scheme. Alphageometrics allow the building of more detailed images and make possible the complete descriptions of shapes, for instance line, circle or arch. However, the transmission times for pages in complex graphics are longer than in the alphamosaic alternative because more information is needed to build the images.

Of the European countries Austria, Denmark, Finland, the Federal Republic of Germany, Italy, the Netherlands, Sweden and Switzerland have also adopted the Prestel system. The software for the

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[1] The Antiope technology forms the basis of the French trial videotex system, called Teletel.

Table 1. Countries active or soon to be active in the field of videotex systems, and the services offered /2/.

Country	Service Name	Service Date	Terminals	Source of Technology	Standard
Austria	Bildschirmtext	1981	300	UK	Prestel
Brazil	System on order	NYK	NYK	France	Antiope
Canada	Telidon Id Telidon Vis. Telidon Mercury	1980 1981 1981	100 500 45	Canada Canada Canada	alphageometric alphageometric alphageometric
Denmark	Teledata	1982	300 planned	Denmark	Prestel
Finland	Telset	1978	200	Finland	Prestel
France	Télétel Electronic Dir.	1981 1981	2500 1000	France France	Antiope Antiope
Holland	Viditel	1980	3500	UK	Prestel
Hong Kong	Viewdata	1980	50	UK	Prestel
Japan	Captain	1979	4000	Japan	NYK
Italy	Videotel	1982	NYK	UK	Prestel
Norway	Teledata	1979	50	Sweden	Prestel
South Africa	Beltel	1982	300	UK	Prestel
Spain	Inseltel	1982	200 planned	Spain	Antiope
Sweden	Dataview	1979	50	Sweden	Prestel
Switzerland	Videotex Videotex	1979 1983	200 2000 planned	UK Germany	Prestel CEPT
United Kingdom	Prestel	1979	11000	UK	Prestel
United States	Various small scale trials	NYK	NYK	NYK	NYK
Venezuela	NYK	Late 1981	30	Canada	alphageometric
West Germany	Bildschirmtext Bildschirmtext	1980 1983	6000 NYK	UK NYK	Prestel CEPT

NYK = Not yet known

Finnish videotex system Telset was developed in Finland. Some other countries have made a contract with the British Telecom to use its software. In some countries, the French and Canadian systems have been adopted.

In the Federal Republic of Germany videotex was for the first time expanded to offer a connection with other computer systems. This concept is known as "gateway" and is also to be applied elsewhere. However, the principle was retained that the simple Prestel protocols should be used even when accessing sophisticated data processing systems.

Information in videotex is stored on pages which are structured into a hierarchic tree structure. Each page in the tree has a single address and it can be reached in two ways: through the branches of the tree that lead to it, or by addressing it directly by page number. The user interaction with a tree-structured database is in principle simple, requiring only a multiple-choice decision.

Each page of information may be split into a number of screen-pages, frames, e.g. 123a, 123b, ... 123f. One frame consists of 20 - 24 rows of 40 characters, which can be letters, numbers, special characters or graphical elements. In addition, six colours and black and white can be used (colour reproductions of videotex pages are presented in Appendices 1 and 2).

Videotex was originally marketed mainly for the general public. In many videotex applications there is still a strong emphasis on information for home use, but other information sectors, particularly those serving specialist users, are also growing rapidly. These users are mainly large firms, commercial and educational institutions, financial organizations and governmental and local authorities.

The distribution of information providers can be used as an indicator of the applicability of videotex to different fields of information. This distribution is influenced by the information provider's perception of the role of videotex. Table 2 shows the distribution of information providers for Captain (Japan), Teletel (France), Bildschirmtext (the Federal Republic of Germany) and Prestel. Of these four systems Captain and Teletel are predominantly residential, whereas Bildschirmtext and Prestel have many information providers also serving the business market.

Videotex is not a single unified service, but a collection of information services supplied by a wide variety of information providers for a wide range of different potential customers and with varying degrees of quality and price. The information is

Table 2. Distribution of information providers for the Captain, Teletel, Bildschirmtext and Prestel systems /4/.

Industry	CAPTAIN Japan	TELETEL France	BILDSCHIRMTEXT W. Germany	PRESTEL UK
Travel and leisure	11 %	17 %	10 %	32 %
Printing and publishing, radio and TV	35 %	18 %	21 %	14 %
Business services	—	7 %	19 %	13 %
Government, charities and research	12 %	14 %	12 %	11 %
Finance and investment		12 %	12 %	7 %
Education	—	4 %	7 %	6 %
Properly and construction	—	2 %	—	2 %
Retail and distribution	11 %	14 %	—	7 %
Advertising and marketing services	13 %	—	7 %	1 %
Other	18 %	12 %	12 %	7 %
TOTAL	100 %	100 %	100 %	100 %

Source
CAPTAIN: "Present Status of the Captain System", NTT, Japan, 1980

TELETEL: "Videotex", Newsletter No. 11, 1981, Paris, France

BILDSCHIRMTEXT: "Videotex developments in the Federal Republic of Germany". Danke / Otto, 1981

PRESTEL AVIP UK Yearbook 81/82, London, UK

still incomplete in many fields and overlapping in some. In this lies one of the basic problems of videotex. The system providers have not been able to reach a final decision about who the users of the systems are and what are their needs.

The videotex user meets various costs, which are composed of the following elements: purchasing or renting of a receiver, installation and rental of a modem and charges for using the system.

The costs of a receiver vary according to its type and size. A modem connects the receiver to the telephone lines. The national PTT offices hire modems and the charges for them are relatively low.

There are three cost elements involved in using the system: the normal telephone call charge whilst connected to the system, a

time-based charge for using the central computer, which is usually different during and outside business hours, and frame charges. Users do not pay any charges for index frames, but only for final frames containing the information. The charges are set by the information providers and they are variable.

3 TECHNICAL AND TECHNO-ECONOMIC INFORMATION IN VIDEOTEX

3.1 General

In principle videotex is also a suitable medium for technical information services. Videotex databases do not, however, contain thorough scientific or technical information, but rather scientific news and techno-economic and technical background information: information concerning industries, business, libraries and information services, and information from governmental organizations.

Industrial information, for instance in Prestel, covers the major industries in the UK providing news, background information, and information on specialist information services. There is also information about foreign countries.

Business information includes information on companies, their products and services, and financial data.

Libraries and information services provide information on new publications, present their services and give user education.

Of the various governmental organizations, for example the statistical offices participate in the services in most countries. Figures are available, concerning industry, energy, transportation, building, services and national accounts.

Examples of some interesting databases are given on the following pages. Some of them were only for trial purposes and have later been withdrawn.

3.2. Examples of videotex databases

3.2.1 Scientific and technical information

The Construction Industry Information Service database (Contel) in Prestel, was designed and compiled by The National Building Agency (Figure 2). The database contains the following information:

- specialized library and information services currently available,
- construction industry news,
- information on new products,
- data from organizations and publishers on the design requirements of building and services,
- authoritative data on general and specialized building subjects from research and development organizations,
- British standards,
- cost information,
- company information for customers concerning the products and services available,
- an index of organizations offering information, service and advice.

The Dutch Building Centre, Bouwcentrum, has an information service on housing and building matters in general and on building products in Viditel (Figure 3). The database is divided into two sections: building information for professionals and information for residents. The professional section includes information on the maintenance and repair of buildings and on running costs. The information for residents consits of advice on buying and renting a residence, on energy saving, thermal insulation and building products.

The Research Association of the Paper and Board, Printing and Packaging Industries (Pira), is providing development programmes in Prestel for current awareness and technology transfer services particularly for the printing industry (Figure 4). Pira also offers programmed package for teaching online retrieval in their own database Pira in the Dialog Information Retrieval Service.

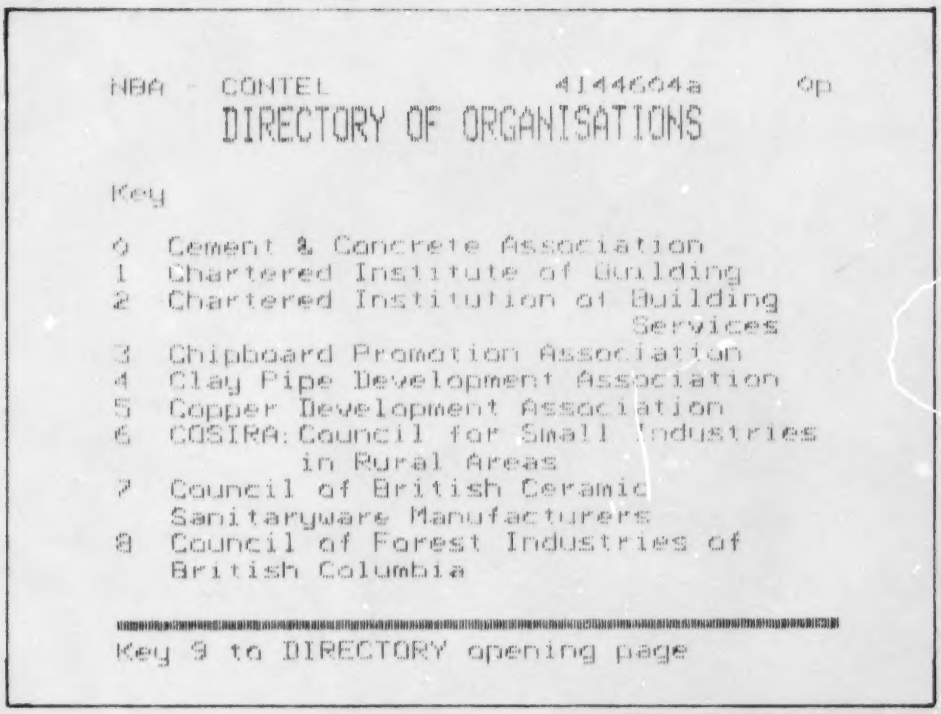
NBA - CONTEL 4144604a 0p
DIRECTORY OF ORGANISATIONS
Key
0 Cement & Concrete Association
1 Chartered Institute of Building
2 Chartered Institution of Building Services
3 Chipboard Promotion Association
4 Clay Pipe Development Association
5 Copper Development Association
6 COSIRA: Council for Small Industries in Rural Areas
7 Council of British Ceramic Sanitaryware Manufacturers
8 Council of Forest Industries of British Columbia
Key 9 to DIRECTORY opening page

Figure 2. The Contel database in Prestel includes a directory of organizations offering information and services for the construction industry.

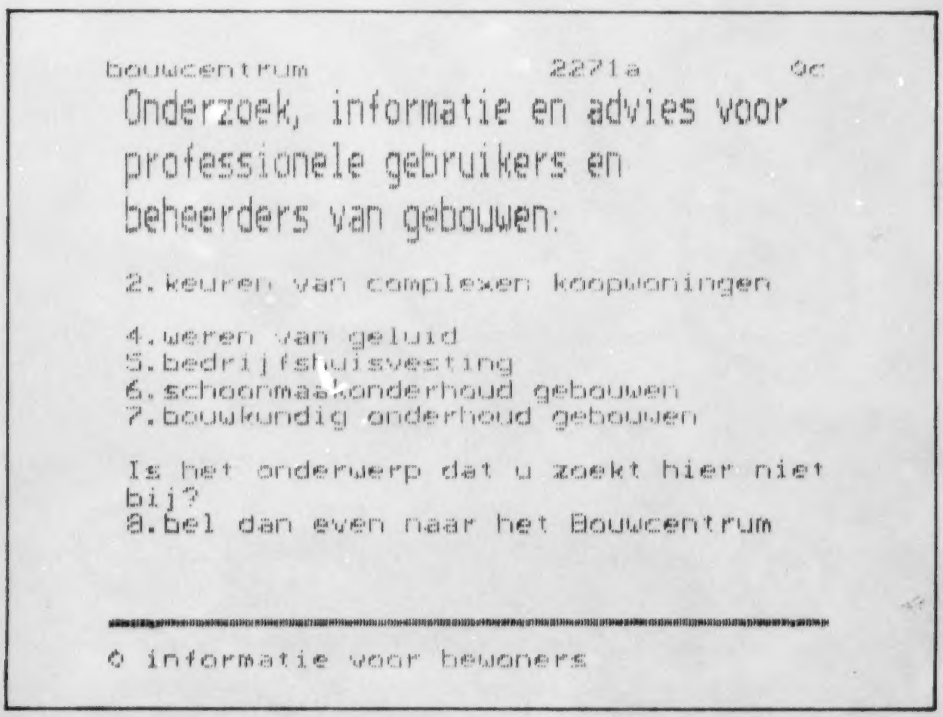
bouwcentrum 2271a 0c
Onderzoek, informatie en advies voor professionele gebruikers en beheerders van gebouwen:
2. keuren van complexen koopwoningen
4. weren van geluid
5. bedrijfshuisvesting
6. schoonmaakonderhoud gebouwen
7. bouwkundig onderhoud gebouwen
Is het onderwerp dat u zoekt hier niet bij?
8. bel dan even naar het Bouwcentrum
0 informatie voor bewoners

Figure 3. Bowcentrum offers building information for professionals in Viditel.

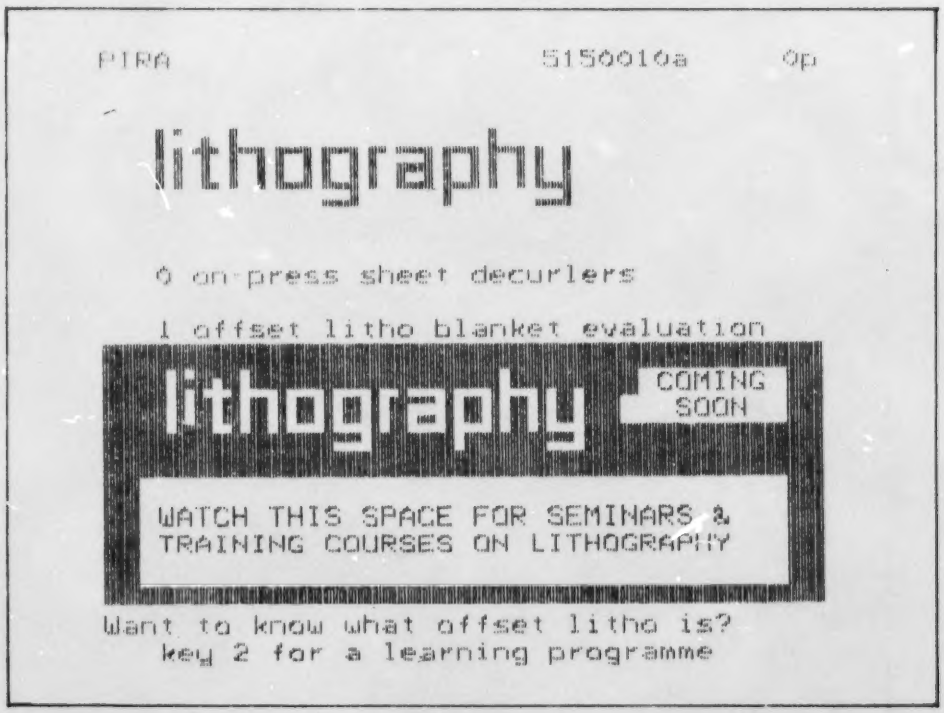

Figure 4. Pira offers information on printing techniques in Prestel.

The Netherlands Central Organization for Applied Scientific Research (TNO), has a large database in Viditel offering information on scientific research carried out at TNO (Figure 5). The fields of information are: nutrition, building, metals, chemistry, traffic and transportation, instruments and scientific equipment, health and the environment, energy, news from TNO and new literature.

Inspec, the Information Services division of The Institute of Electrical Engineers (IEE), had an experimental database in Prestel. Inspec offered some general information on the Institute and its services, and samples of their directory. The database was divided into the following sectors:

- description of IEE and its departments,
- Inspec products and services,
- Electrical & Electronics Trades Directory,
- careers in electrical engineering,
- electricity at home,
- electricity abroad (voltage and frequencies).

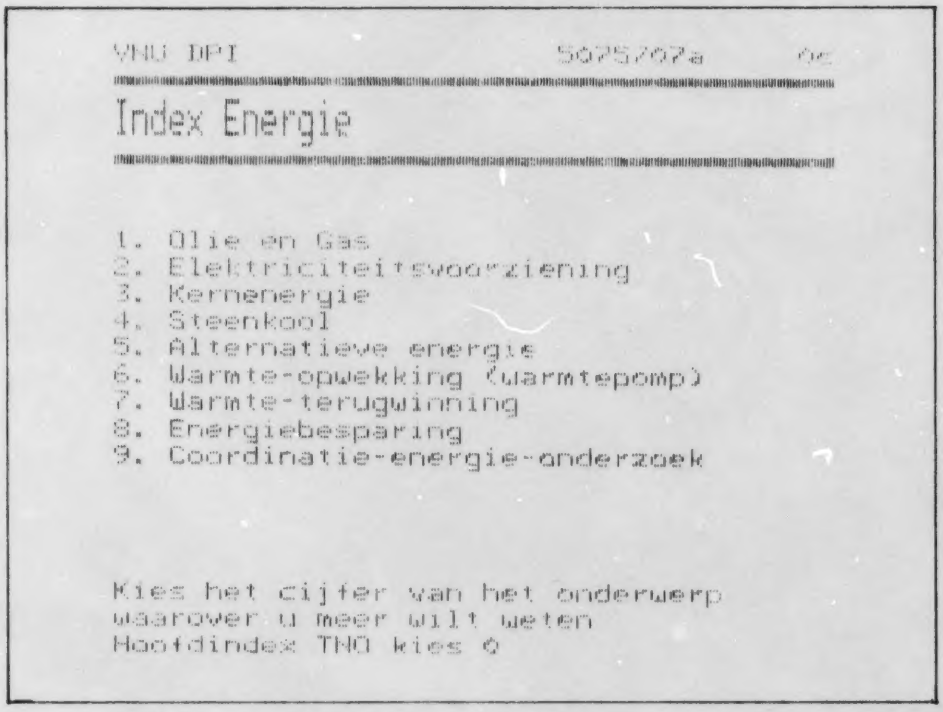

Figure 5. The TNO database offers information on different sources of energy and energy saving in Viditel.

The Institute for Scientific Information (ISI), experimented with a weekly science magazine in Prestel under the name ISI Scitel Service. This service attempted to provide an overview of current science. It contained news items on science and technology, medicine and health, social science, energy and the environment, and information on organizations in science. The material was obtained from press releases, foreign embassy communiqués, government departments, research establishments, scientific journals, newspapers etc.

3.2.2 Library information

The British Library was one of the first information providers in Prestel. The videotex pages describe the services of the Library and give information on new publications, courses etc. (Figure 6). The target groups of the British Library are the general public and the public libraries.

Originally, it was thought that one of the major contributions would be the latest weekly list of the British National Bibliography. Converting the weekly magnetic tapes into a form compatible with Prestel was, however, a slow process. Furthermore, it was soon realized that searches based on the Dewey classification were unsuitable for the Prestel system. Later, the service was modified into short reading lists on general, topical or seasonal subjects. The frames are changed regularly to reflect current interests.

OCLC Online Computer Library Center offers videotex services in the USA. These services are described in section 4.2.

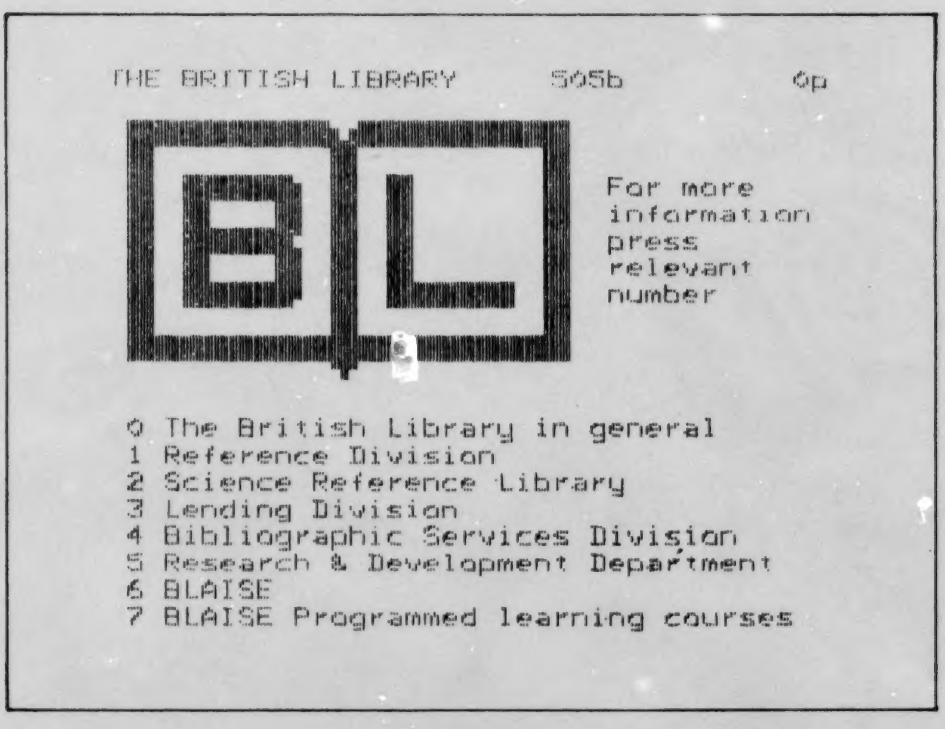
THE BRITISH LIBRARY 505b 0p
BL
For more information press relevant number
0 The British Library in general
1 Reference Division
2 Science Reference Library
3 Lending Division
4 Bibliographic Services Division
5 Research & Development Department
6 BLAISE
7 BLAISE Programmed learning courses

Figure 6. The British Library's Prestel pages describe the services of the Library.

3.2.3 Business information

Fintel offers a daily news service in Prestel, as well as statistical, economic and financial information aimed at the business community (Figure 7). It also provides company information about 150 companies. For each company are given:

- today's news,
- recent developments,
- company statistics and corporate information,
- comments and evaluation of the company by stockbrokers and specialized writers.

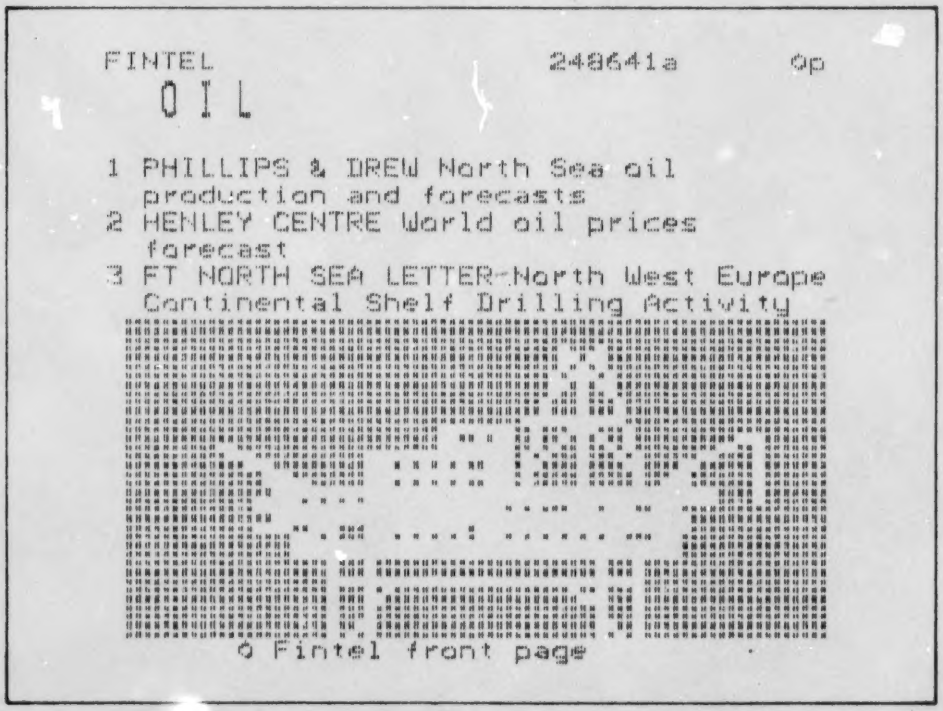
FINTEL
248641a
0p
OIL
1 PHILLIPS & DREW North Sea oil production and forecasts
2 HENLEY CENTRE World oil prices forecast
3 FT NORTH SEA LETTER-North West Europe Continental Shelf Drilling Activity
0 Fintel front page

Figure 7. Fintel provides forecasts of oil production in Prestel.

The Economist provides information on the economies and politics of over 100 countries in Prestel (Figure 8). The statistical section covers economic indicators, commodity prices and currencies. There is also information on current affairs in the United Kingdom and abroad: news, views and background reports.

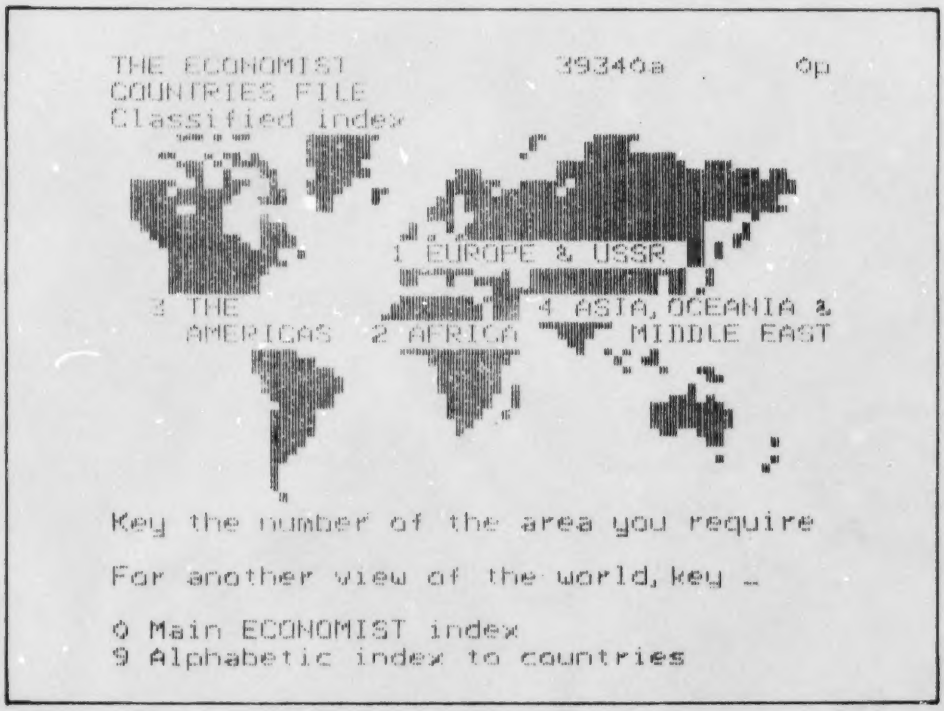

Figure 8. Economic and political information concerning several countries is available from The Economist database in Prestel.

3.2.4 Governmental information

Over twenty governmental organizations in the United Kingdom are presently providing Prestel with information (Table 3). Governmental organizations also offer information to most other videotex systems, for example to Viditel, DataVision (Sweden) (Figure 11) and Teledata (Norway) (Figure 12).

Table 3. Governmental information providers and services offered in Prestel /1/.

Parliament: Details of how the two Houses operate, committees currently sitting, and upcoming debates for the week.
Ministry of Agriculture, Fisheries & Food: Advice to farmers
British Overseas Trade Board: Advice to exporters
Central Film Library: Catalogue and booking service
Central Office of Information: General indexing and cross-indexing
Central Statistical Office: Main economic indicators, and other key statistics
Careers and Occupational Information Centre: Advice on how to choose a career
Department of Education & Science: Educational material
Department of Environment: Planning permission procedure, housing grants
Department of Industry: Support and grants for industry. Small businessman's database
Department of Health & Social Security: Social security benefits
Health Education Council: Health advice (including how to give up smoking)
Health and Safety Executive: Regulations on safety at work
HM Stationery Office: Latest publications
Lord Chancellor's Office: Legal aid and advice schemes
Inland Revenue: Tax details
Professional and Executive Register: Professional job vacancies
Department of Trade: Regulations, Shipping information
Meteorological Office: Weather forecasts and details - world wide
Office of Fair Trading: Consumer rights and laws
Property Services Agency: Material for the building industry

The Ministry of Agriculture, Fisheries and Food of the United Kingdom offers technical advice for farmers and growers in Prestel (Figure 9). There is also a wide range of advice on food and nutrition, aimed at consumers. For the general public there are also news items, policy decisions and statistical summaries on farming in the United Kingdom.

The Central Bureau of Statistics of the Netherlands (CBS), has a database in Viditel which includes statistical information concerning most areas of society (Figure 10). Information is offered on trade, industry, building, energy, environment, prices, consumption, wages, employment, population, health, culture and politics.

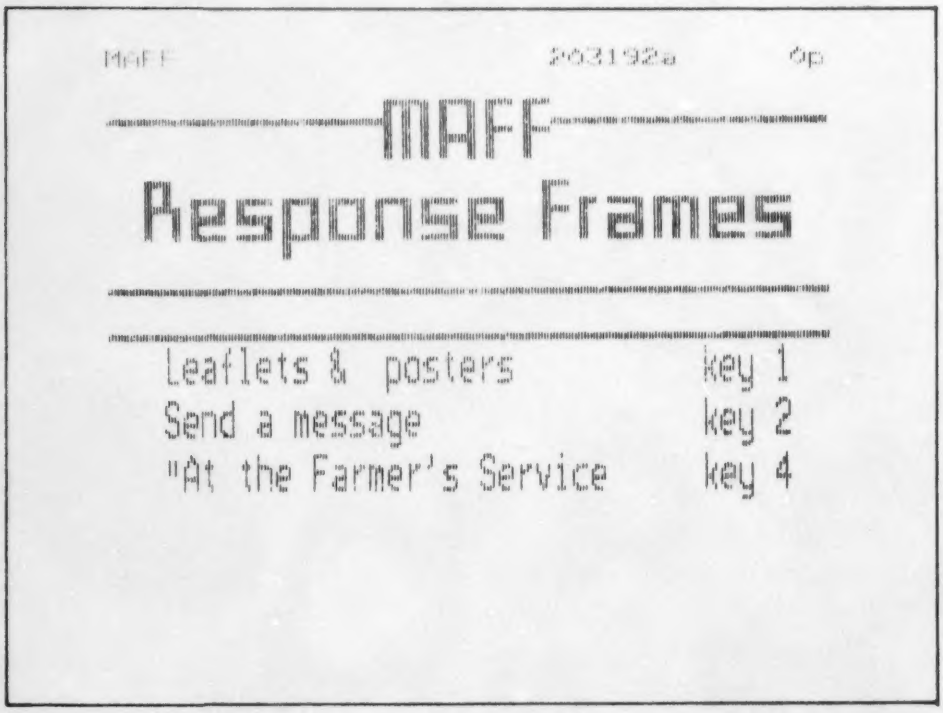

Figure 9. The Ministry of Agriculture, Fisheries and Food database in Prestel contains response frames, with which users can ask for advice, order leaflets etc.

CBS 36022222a 0c

GEM. AANTAL WERKZAME PERSONEN OP IN UITVOERING ZIJNDE WERKEN VAN 10000 GLD EN MEER, W.V.BOUWVERGUNNING IS VERLEEND

	1978	1979	1980
Totaal gebouwen	127600	136900	128900
w.v.			
Herstel en verbouw	14100	16100	15600
Woningen	72000	72800	68900
Agrarische gebouwen	4400	6100	4500
Bedrijfsgeb. v.d.			
nijverheid	9000	11100	9400
handel en verkeer	12500	14100	13900
Bijzondere gebouwen			
gezondheidszorg	3700	4500	4700
scholen	4800	4800	4000
andere gebouwen	4400	4900	5200
Overheidsgebouwen	2900	2600	2800

Maandstatistiek van de bouwnijverheid
toets 0 voor index 30-10-81

Figure 10. The CBS database in Viditel includes figures on the construction industry.

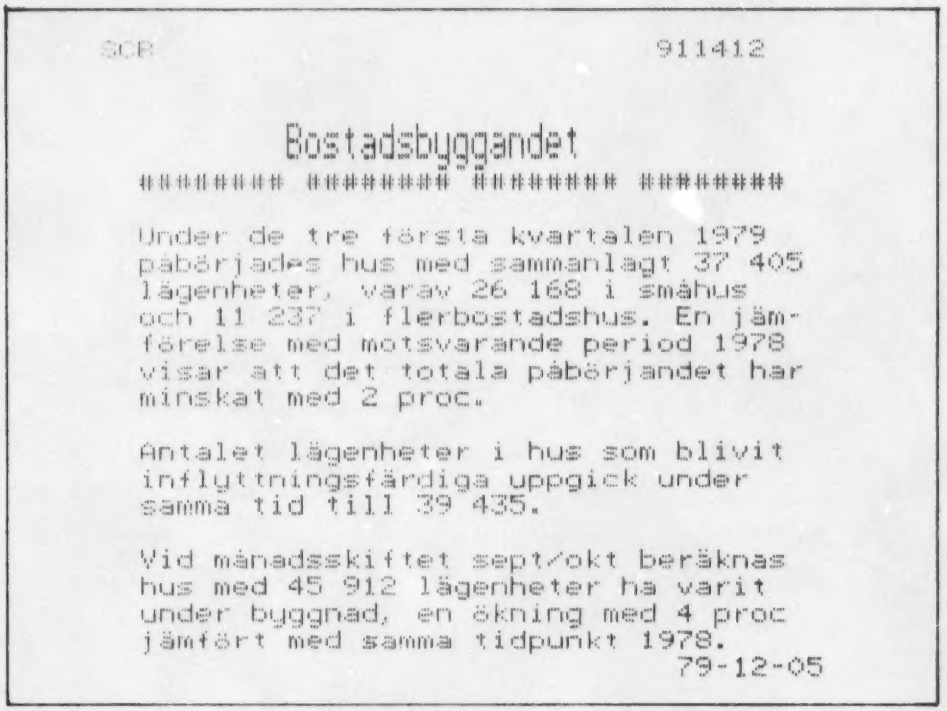
SCB
911412
Bostadsbyggandet
######## ######## ######## ########
Under de tre första kvartalen 1979
påbörjades hus med sammanlagt 37 405
lägenheter, varav 26 168 i småhus
och 11 237 i flerbostadshus. En jäm-
förelse med motsvarande period 1978
visar att det totala påbörjandet har
minskat med 2 proc.
Antalet lägenheter i hus som blivit
inflyttningsfärdiga uppgick under
samma tid till 39 435.
Vid månadsskiftet sept/okt beräknas
hus med 45 912 lägenheter ha varit
under byggnad, en ökning med 4 proc
jämfört med samma tidpunkt 1978.
79-12-05

Figure 11. The National Central Bureau of Statistics of Sweden (SCB), offers short statistical summaries, for instance on building, in DataVision.

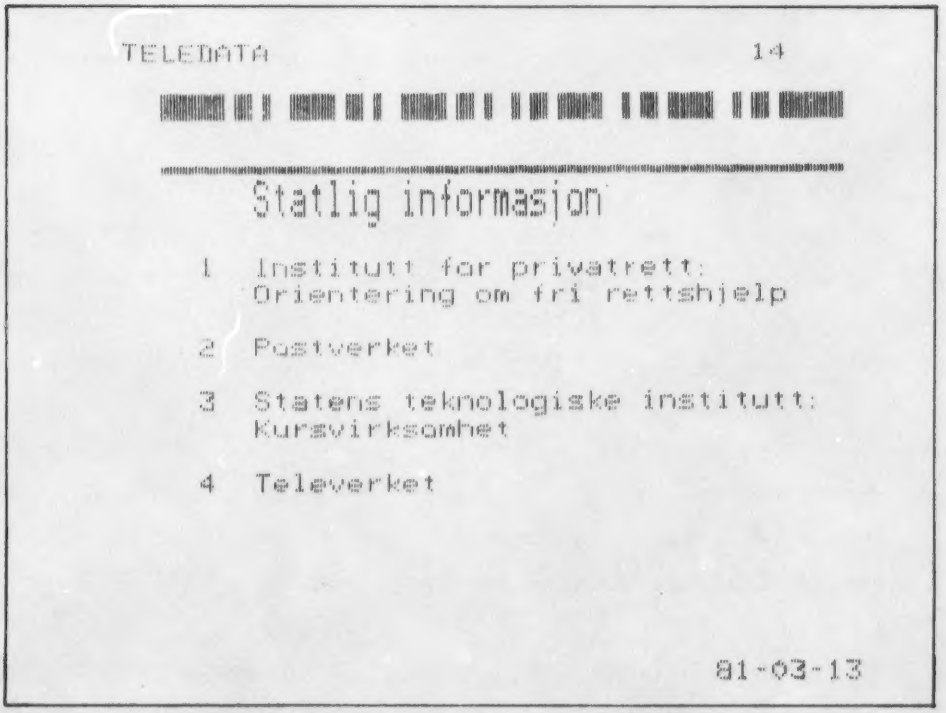

Figure 12. Four governmental organizations provide information to Teledata.

4 OTHER APPLICATIONS OF VIDEOTEX

4.1 Closed user groups

The videotex system can be used to provide access to information of interest to a restricted group using a common password for identification. The concept of the closed user group enables an information provider to communicate with a group of specialist associates or to disseminate confidential information within his organization (internal videotex systems). Current closed user group services cover for example shipments and agriculture. Internal videotex systems contain in most cases only company information. They can be used as an applicaton of management information system, covering for example the newest financial information.

4.2 OCLC Online Computer Library Center

OCLC Online Computer Library Center Inc. is one of the sponsors of research on videotex-related services in the United States. OCLC has conducted projects involving human-computer interaction, access improvements (subject searching, use of search keys) and home delivery of library services.

Channel 2000, a computer-based home information system, was developed and market-tested by OCLC and Bank One Corporation. This service will provide access to computerized catalogues of the Public Libraries of Columbus and Franklin Counties and to the catalogues of Denison University. It has a unique browsing capability which can be utilized when searching book catalogues. Each item is indexed by author, title and subject. In addition to library catalogues and calendars of library events Channel 2000 will provide access to the "Academic American Encyclopedia" and to financial services available from Bank One of Columbus.

OCLC, in cooperation with the Source Telecomputing Corporation, offered some 600 libraries with the opportunity of participating in a trial of the Source information retrieval system. The Source

provides a large scale of database information, such as a subset of the New York Times Information Bank, The Official Airline Guide, UPI News Service and the World Almanac. Other features include:

- an electronic mail service with immediate delivery to other subscribing libraries,
- text editing and other word processing services including electronic message filling,
- teleconferencing at rates below telephone company tariffs,
- nearly 2000 ready-to-use computer programs ranging from educational programs to advanced financial systems.

4.3 Connection of videotex with other information retrieval systems

The European Community has studied the possible areas of compatibility between videotex and Euronet DIANE (Direct Information Access Network for Europe). These could include the transmission of videotex services over packet-switched networks, cross-arrangements for users and suppliers, and developments in the cost and flexibility of terminals and existing TV-standards. The establishment of national networks linking local videotex databases will probably be realized first.

The U.S. data network, Telenet, has been interested in acting as a common carrier for videotex. It has had some informal contacts with the British Telecom.

In France a service network is planned which would combine the different services, such as teletex, teletext and videotex, to a unit system covering the whole country. Transpac, the packet-switched data network, would link the services.

5 THE FINNISH VIDEOTEX SYSTEM TELSET

5.1 Development of Telset

The development of Telset, the first Finnish videotex system, was started in 1975. It was developed by Sanoma Publishing

Company, Helsinki Telephone Company and Nokia Electronics (Figure 13). The first trial project of Telset was initiated in June 1978 with 30 users and it was continued until March 1980. The Helsinki Telset Company was founded on 1 April 1980 as the second commercial videotex service in Europe after Prestel. The service operates in the Helsinki area (Figure 14).

By the end of 1981, the information content in Telset comprised about 13 000 frames, of which 8 300 were in the open service. There were 12 information providers and about 250 users, mostly large companies, banks, newspapers, and other organizations. The main information providers were Sanoma Publishing Company and its information service, The Technical Research Centre of Finland, The Central Statistical Office of Finland and the City of Helsinki.

5.2 The Technical Research Centre of Finland as a provider of information

The Technical Research Centre of Finland (VTT) is a government supported research institute carrying out research in a wide range of fields of technology. Its role is to create, maintain and develope technical expertise for the Finnish industry. The fields of research can be divided into five units: building technology, community development, material and processing technology, energy technology and information technology.

VTT's Technical Information Service is entrusted with the task of supplying technical and scientific information to those requiring it, as well as of disseminating information on research results achieved at VTT.

The Technical Information Service became associated with the Finnish videotex trial, Telset, as an information provider at the beginning of 1979 with an unlimited number of free frames. The intention was to offer current information concerning the Research Centre and its work and the activities and organization of the Technical Information Service (Figure 15).

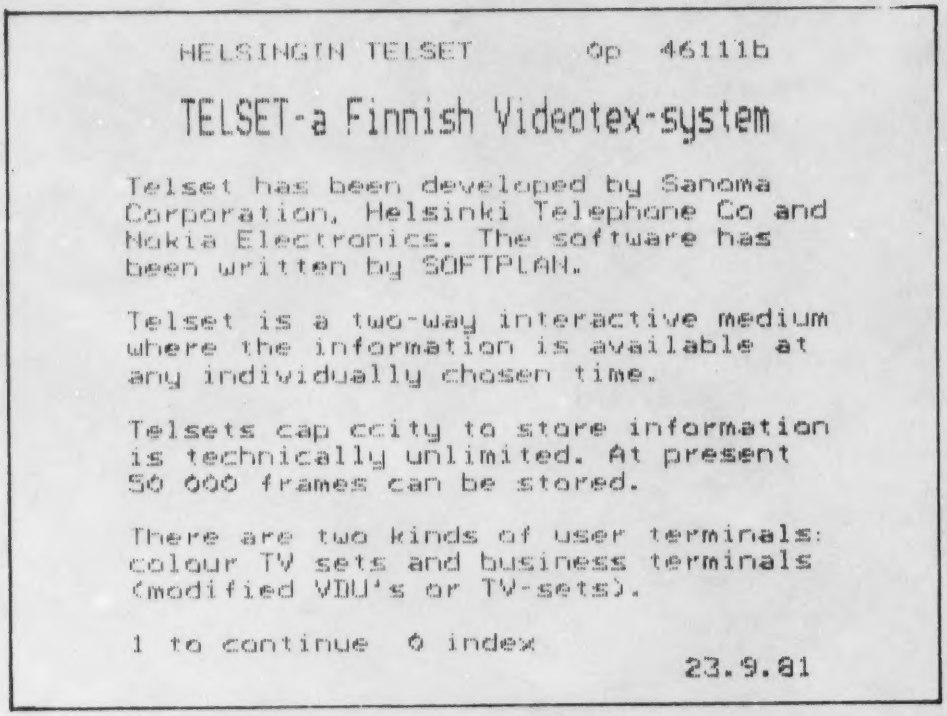
HELSINGIN TELSET Op 46111b
TELSET-a Finnish Videotex-system
Telset has been developed by Sanoma Corporation, Helsinki Telephone Co and Nokia Electronics. The software has been written by SOFTPLAN.
Telset is a two-way interactive medium where the information is available at any individually chosen time.
Telsets cap ccity to store information is technically unlimited. At present 50 000 frames can be stored.
There are two kinds of user terminals: colour TV sets and business terminals (modified VDU's or TV-sets).
1 to continue 0 index
23.9.81

Figure 13. On the Telset pages there is information concerning Telset itself.

Figure 14. Telset offers information on events in Helsinki.

The database is arranged into the following sections:

- news and current events at VTT,

  The news section contains mainly recent research results which can be considered to be of interest to a wide audience.

- how to contact VTT,

  This section gives the addresses and the telephone and telex numbers of different laboratories. VTT has laboratories in five locations in Finland.

- general presentation of VTT,

  The general presentation of VTT covers annual review-type information such as financing, personnel etc (Figure 16).

- research divisions and laboratories of VTT,

  The research divisions section presents each activity unit, its main area of interest, persons to contact, the latest public ongoing research programs and the most recent publications (Figure 17).

- Technical Information Service,

  The information service section is divided into subsections: information services, publications and the research register, travel reports and a description of the activities of the Finnish Scientific Attachés (Figure 18).

Figure 15. The first page of the English language presentation of VTT in Telset.

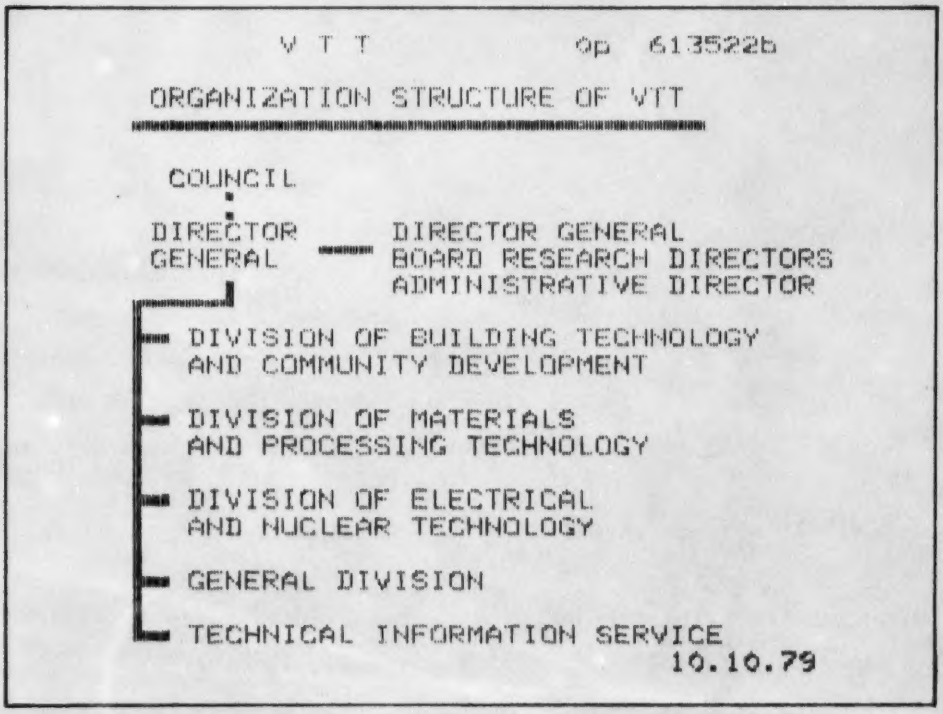

Figure 16. General information concerning VTT is available in Telset.

- The information service pages offer a short presentation of information enquiries, literature searches and selective dissemination of information. This section also includes lists of contact persons in the Technical Information Service, information sources and information systems in use at VTT. The Scannet network and Scannet databases are also presented in this section.

- General information on VTT's publications and on the register of ongoing research is given in this section. The research publications of the Research Centre are published by the Technical Information Service, which is also responsible for the research register.

- Online register of travel reports has been implemented into videotex. The Technical Information Service collects travel reports from a number of governmental, scientific and reports is published five times a year.

- Abstracts of reports made by the Finnish Scientific Attachés abroad are made available by videotex in addition to the announcements appearing in printed publications. These reports deal with state-of-the-art evaluations in different fields of technology or with current events of interest to the industry.

5.2.1 Experience in building up a database

During the trial the Technical Information Service has gained experience in collecting information and feeding it into the videotex system. One of the problems has been to edit the material in a sufficiently compact form, and the structure of the information has needed careful consideration. It is also difficult to inform the viewers about the content of the database in

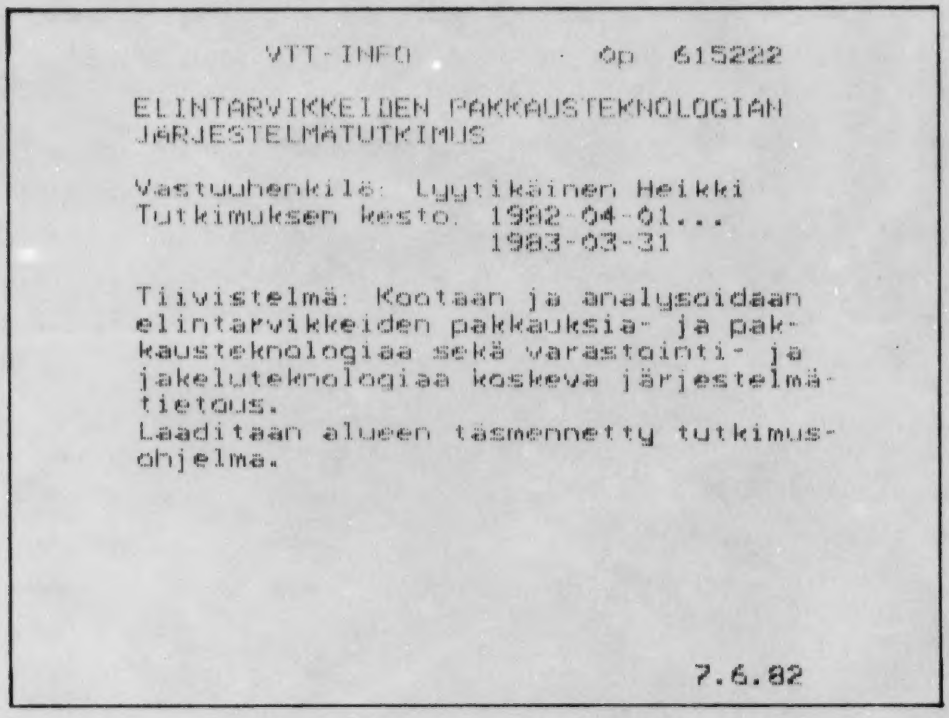
VTT-INFO Op 615222
ELINTARVIKKEIDEN PAKKAUSTEKNOLOGIAN JÄRJESTELMÄTUTKIMUS
Vastuuhenkilö: Lyytikäinen Heikki
Tutkimuksen kesto: 1982-04-01...
1983-03-31
Tiivistelmä: Kootaan ja analysoidaan elintarvikkeiden pakkauksia- ja pakkausteknologiaa sekä varastointi- ja jakeluteknologiaa koskeva järjestelmätietous.
Laaditaan alueen täsmennetty tutkimusohjelma.
7.6.82

Figure 17. Information on public research in progress at VTT is available in Telset.

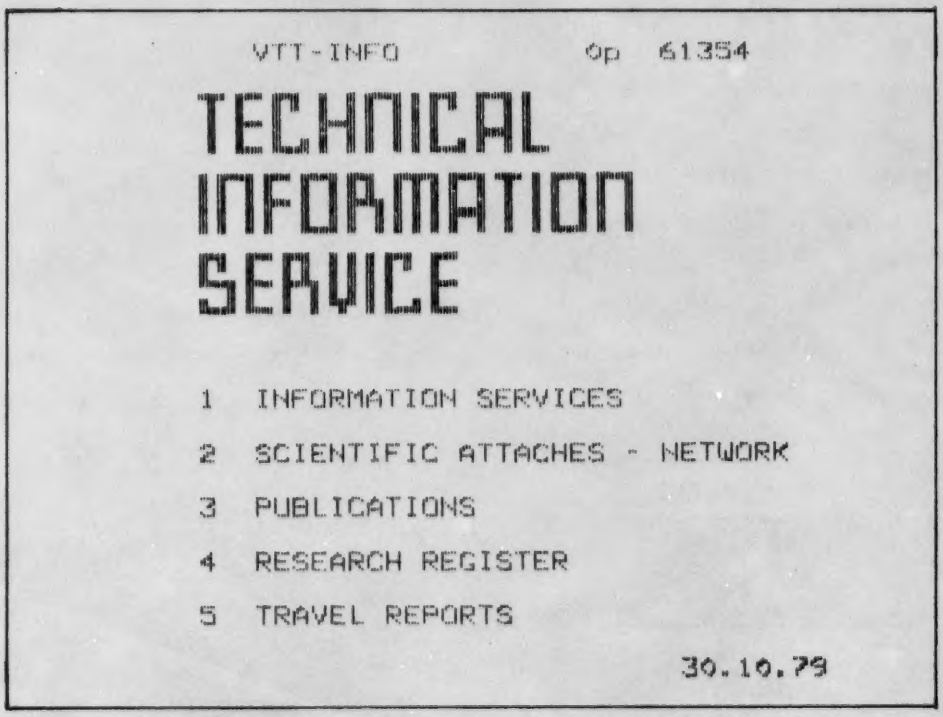

Figure 18. The Information Service offers information on its activities in Telset.

one or two front pages. The index words in the general index require many checkings to ensure the best possible coverage.

The utilization of graphics is time-consuming, but is nevertheless recommendable. The use of colours gives the information provider a wider possibility of presenting information. However, care is necessary with the use of colours: there are many examples of how information has disappeared due to the excessive use of colours.

At present the creation of a videotex database must be considered at rather expensive. The main cost is storage. Even a modest database requires 100 - 1 000 frames. The annual storage costs for a small database of 500 frames in Telset are 30 000 FIM.

5.2.2 The use of videotex at the Technical Information Service of VTT

Telset has mainly been used in demonstrations for visitors to VTT. An automatic rotating program of about 30 frames presenting the activities of VTT has also been designed for demonstration purposes. Each frame is in view for about 20 to 30 seconds.

Videotex has seldom been used as a source of scientific and technical information because of the relatively small amount of such information contained. At present there are about 30 different conventional online information retrieval systems in use at VTT, which can to a large extent satisfy the demand for information. Only new complementary information has on occassion been sought from videotex.

6 EVALUATION OF VIDEOTEX IN TECHNICAL INFORMATION SERVICES

6.1 The tasks of information services

The main tasks of information services are information retrieval, document delivery and dissemination of information. Videotex can be used for all these purposes. The suitability of videotex for these services is discussed in the following.

6.2 Information retrieval

Sources of information are devided in informatics into primary, secondary and tertiary sources. In the following this classification is seen from information producer's point of view. Some of the information sources may belong to more than one group.

In primary sources of information the piece of information is presented for the first time. Scientific articles, conference papers, research reports and patents are typical examples of primary sources of information. As they usually contain detailed information, they are relatively long. Videotex requires a short and compact type of presentation, and for this reason it is not very appropriate to store them as such.

Primary sources are referenced in secondary sources of information, often concentrating on certain topics. The secondary sources of information can be considered as resources for finding the primary sources. Abstract and index publications, handbooks and encyclopedias, are examples of secondary sources of information. Large amounts of bibliographic information in abstracts and index publications are not very suitable material for videotex because of the limited search capability of videotex systems. Factual information, based on encyclopedias and handbooks, is usually compact, and could be transferred into videotex.

Nowadays, information services and libraries usually use online information retrieval systems with extensive information banks covering bibliographic and factual information. Bibliographic databases contain millions of references relating to original documents. In the factual databases (databanks) the required specific information can be found immediately.

The online databases provide users with the ability to search by using keywords and to combine the keywords in order to gain the advantage of rapid response and the capability of carrying out

interactive searches. In videotex systems the search is started by using the subject index or the information provider index. The search continues following a rigid tree structure, which makes the search procedure inflexible and time-consuming. In future, however, videotex systems will adopt the keyword search technique.

Because of the limited search capability, the massive volumes of information in bibliographic databases are not at present suitable material for videotex. However, the division between videotex databases and bibliographic databases is not very clear because booklists also appear in many videotex systems, for example Blaise has its reading lists in Prestel. In future videotex technology may also provide access to online bibliographic databases with the aid of gateways, or videotex terminals could be used for searches made from bibliographic databases.

If conventional bibliographic databases were to become accessible via videotex, they would probably not be used very much for libraries and information services because the original idea of videotex as a paperless information medium is not very suitable for bibliographic information. There are printers which are suitable for videotex, but they are not yet very efficient in continuous use. The bibliographic information in colour TV sets would only be used in demonstrations and for educational purposes.

A drawback of videotex is also its lack of retrospective information. The information would be much more useful if it extended back over several years. One reason for the lack of retrospective data is that the main users of videotex, i.e. business and domestic users, are most interested in current data. Limited search capability and increasing storage costs also limit the inclusion of retrospective information.

Information in databanks (factual information) is mainly based on reference books and other original documents. This information is very compact and could be implemented in videotex systems. For

this kind of information colours and graphics can be used effectively, for example for histograms, graphs and maps. The trend towards this encyclopedic kind of information seems to be growing in different videotex systems. Encyclopedias are already searchable, for instance in both the British and German systems.

The introduction of the gateway facility will be especially important for factual information retrieval. Gateways enable existing databases to be more widely available by creating an easy means of access to the data with a single videotex protocol. At present there are gateway applications in the Federal Republic of Germany, the United Kingdom and the Netherlands. The applications involved are for example banking, insurance, consumer advice, agriculture, travel agents, business information and educational institutions.

Tertiary sources of information help to find primary and secondary sources of information. "How to find", "who's who", and various address-, person- and publisher catalogues are examples of tertiary sources of information. These compact packages of information are appropriate material for videotex.

The problem with printed tertiary sources of information is often outdated information, which could be avoided by using videotex systems. For example, the information services could have catalogues of their own online retrieval systems on videotex.

Generally, the information in videotex is suitable as a starting point for a search, for example from online databases, or as a source of complementary information.

In all information retrieval from videotex, familiarity with the databases is essential if the maximum benefit is to be obtained. It is also important to be continously aware of the new information in the system. Usually there are pages where information on recent topics can be found. In Prestel pages like "What's new on Prestel", updated at frequent intervals, are well adapted to follow up the new additions.

6.3 Document delivery

By document delivery in this context is meant the ordering of documents via videotex. These services are dependent on the interactivity of videotex services and require an alphabetic keyboard and a message sending facility.

Document ordering systems connected to conventional online information retrieval systems are developing rapidly and libraries and information services are starting to use them. It seems that document ordering using videotex will remain occasional in libraries and information services, but for the general public this kind of service may become important.

6.4 Dissemination of technical information

Research organizations need to disseminate the results of their scientific and technical work to the industry. The typical end-product of a research project is a report, which can be both detailed and highly technical, but it is of value only if it is read and its results applied.

The Research Association of the Paper and Board, Printing and Packaging Industries (Pira) carried out a study in which an evaluation was made of the effectiveness of Prestel for disseminating information on research and technical reports directly to users in industry /3/.

The target population was defined as general management and senior technical management in firms in the printing industry, including firms supplying materials and equipment to the printing industry.

A pilot database was set up on Prestel. To ensure its topicality, material was taken from recent research reports. The database contained only the essential points of the reports, discursive material being omitted. Full use was made of Prestel's special characteristics: colour, graphics and routing structure.

The general reaction to Prestel was favourable. Prestel was regarded primarily as a potentially useful source of the latest updated information, and an access point to request more detailed information from an information provider. The conclusion was that Prestel offered an acceptable method for the dissemination of research results to industry.

It seems that one of the most beneficial ways of using videotex for dissemination of technical information is technological news services. The databases may be rather small but they must be updated frequently. They can include, for instance information on research projects, financial and legal information, and product news.

6.5 Advantages and disadvantages of the videotex system

The main advantages of the videotex system are up-to-date information, easy use and relatively low costs. Disadvantages include undeveloped search possibilities and the small size of the frame. In the following is a list of some advantages and disadvantages of the videotex system as seen from the user's and information provider's point of view.

Advantages of the videotex system

The user's point of view:

- up-to-date information,
- compact form,
- visual attractiveness,
- easy to use,
- low costs compared with online databases,
- pay only when used,
- free movement between different information services,
- compatible videotex systems from other countries can be used.

The information provider's point of view:

- updating is fast,
- files on magnetic tapes can be used,
- the needs of customers can be rapidly met,
- interactive communication.

Disadvantages of the videotex system

The user's point of view:

- the tree structure: a step-by-step search may be time-consuming and expensive, yet the desired results are not always obtained. Searching by using keywords and logical operators is not yet possible,
- information is not uniformly indexed,
- the original source of data is not always cited,
- older information is poorly covered (not fed in or not stored),
- amount of information relatively small (compared, e.g. with conventional online databases),
- no computing power for users.

The information provider's point of view:

- cost of data storage,
- videotex systems have too few users, so revenues are low and consequently the possibility of building up large databases is limited,
- little information available on what kind of data should be included,
- small frame size.

7 FUTURE VIEWS

During the last few years there has been rapid development in the videotex system technology. The information content of videotex systems has not, however, so far lived up to all the expectations. The basic problem has been that with a small amount of users it is hard to get information providers and vice versa. Also because the services are still quite new, most of them only trials, the needs of

the users have not been evaluated. The development of the quality and quantity of videotex databases has been slow mainly due to these reasons.

The impact of videotex on technical information services is at present rather small because it contains only a modest amount of useful information compared with other information sources. In the future, however, videotex may reach a better position with technical improvements and a largening scope of databases among other information systems. Videotex would have several effects on the work of information services. The staff has to learn new skills - videotex searching is not the same as the conventional online information retrieval and the databases are in a different form. Also as information providers the information services have to change their traditional ways of thinking, because information is being provided in a new form and by a new medium.

A number of new electronic media and services have been developed simultaneously with videotex, for example teletex, teletext and personal computers. Together they provide information retrieval, transactional services, messaging and problem solving. In the future the trend is towards combining the single function terminals to multifunction terminals, where videotex is one of the functions available. These terminals will be necessary tools in "the office of the future" as well as in information services. Therefore it is important that information specialists and librarians keep abreast of the development of videotex as one aspect of the new information technology.

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APPENDICES

1 FRONT PAGES OF SOME VIDEOTEX SYSTEMS

2 SOME TYPICAL VIDEOTEX PAGES

FRONT PAGES OF SOME VIDEOTEX SYSTEMS

The German Bildschirmtext

The Swedish DataVision

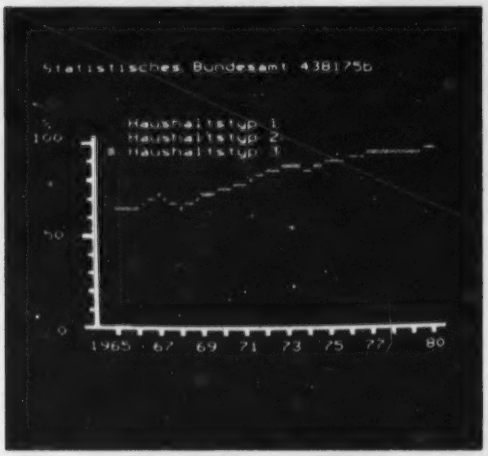
The British Prestel

The Norwegian Teledata

The Finnish Telset

The Dutch Viditel

SOME TYPICAL VIDEOTEX PAGES

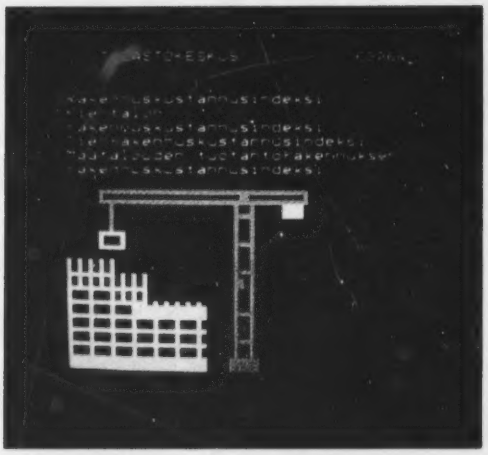


Bildschirmtext

DataVision

Prestel

Teledata



Telset

Viditel

Julkaisija – Utgivare – Published by

Technical Research Centre of Finland VTT

Asiakirjan nimi ja koodi – Namn och kod – Name and code

VTT Research Notes 115

Asiakirjan päivämäärä – Datum – Date

June 1982

Asiatunnus – Projektnummer – Project number

199002-5

Tekijä(t) – Författarna – Authors

Vesterinen, Pirjo

Gröhn, Inga-Leena

Projektin nimi – Projektets namn – Name of project

Viewdata

Toimeksiantaja – Uppdragsgivare – Commissioned by

Nordinfo, VTT

Nimeke – Namn – Titel

VIDEOTEX APPLICATIONS IN THE TECHNICAL INFORMATION SERVICE

Tiivistelmä – Referat – Abstract

The Technical Information Service of the Technical Research Centre of Finland has studied a number of videotex systems operated in several countries. The main emphasis has been on the content of the technical information. The Technical Information Service has also introduced its own data base into a Finnish videotex system, Telset. On the basis of this experience the usefulness of videotex for technical information services is evaluated.

Videotex has some advantageous features compared with many other information media: the information can be updated and disseminated rapidly, and the system can reach a relatively large number of users who are able to consult the databases and move from information retrieval to transactional services. The main potential of videotex, in the technical as well as in other fields, is in providing current, compact and factual information. Small-scale news services, encyclopedias, directories and compact techno-economic information are suitable for videotex. This kind of information, however, fulfils only a small part of the information demand in technical information services.

The search procedure in videotex is hitherto still somewhat undeveloped. It is based on a rigid tree-like hierarchy, which makes the search inflexible and time-consuming. In the future, however, videotex systems will adopt the keyword search procedure.

Because of its limited information content and cumbersome search procedure videotex is not likely to become an important information system in technical libraries and information services in the near future. However, the improved search procedure and the introduction of the gateway facility, which enables a connection to other databases and information systems outside videotex, are a significant development in the information retrieval capacity of videotex and will probably bring new and useful information sources into the scope of technical information services.

Avainsanat – Nyckelord – Key words

information systems, information services, videotex

Luokitus ja/tai indeksointi – Klass och/eller index – Class and/or index

UDC 621.397.12:002

Muut bibliografiset tiedot – Övriga bibliografiska data – Other bibliographic data

Technical Information Service

Kieli – Språk – Language

English

ISSN ja avainnimeke – nyckelnamn – key name

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